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COORDINATING COMMITTEE

RECORD OF DISCUSSION

4251571

ON

A FRENCH PROPOSAL TO EXPORT AN ANALOGUE COMPUTER TO CZECHOSLOVAKIA

8th October 1959

Present: Belgium(Luxembourg), Canada, Denmark, France, Germany, Italy, Japan, Netherlands, United Kingdom, United States.

Reference : COCOM 3684.

1. The CHAIRMAN drew the Committee's attention to a French proposal to export an analogue computer to Czechoslovakia. He invited Delegates to state their Governments' views.

2. The FRENCH Delegate gave the following additional information. The price of the equipment was really not at all high for machines of this type, which normally cost twice as much. In this figure of $ 46,000, the machine itself represented $ 24,000, the rack containing the two follow-up recorders $ 9,000 and the rack containing the eight function translators $ 13,000. The Committee will thus note that the strategic part of this equipment, although accounting for the larger part of the price, does not in itself represent a very great amount. The Delegate further drew the Committee's attention to the following point. The French experts have found that the characteristics of this analogue computer fell rather under the definition of Item 1568(b) than that of Item 1565. The French Delegation had therefore submitted this exception request, as set out in COCOM Doc. 3684, in the context of the definition of Item 1568(b).

3. The GERMAN Delegate stated that his Government raised no objection to this export.

4. The UNITED STATES Delegate stated that his authorities had examined the French proposal very carefully in order to see whether it met the requirements of the ad hoc procedure. They had found no justification for the submission of this request under that procedure. The United States authorities believed that the fact that this export was linked with a trade agreement was not sufficient to constitute a valid prior commitment. The machine was clearly subject to embargo. It was not a business machine, but a machine clearly intended for scientific and engineering uses. For these reasons, the United States Government were unable to approve the French case.

5. The UNITED KINGDOM Delegate stated that his authorities had no objection to this export but that they would be glad to know the name of the importer and the use to which the machine would be put in Czechoslovakia.

6. The NETHERLANDS Delegate stated that he had not yet received final instructions from his Government, who wished to study the French case more thoroughly. He nevertheless hoped to be able to give their final reply at the Committee's next meeting.

7. The BELGIAN Delegate stated that his authorities would be glad to know the contemplated end-use before giving final views.

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8. The ITALIAN Delegate stated that his Government raised no objection to this export in view of what the French authorities had stated both as to the machine's technical characteristics and as to its end-use.

9. The DANISH Delegate stated that his Government would join the majority.

10. The JAPANESE Delegate hoped to have his Government's views for the next meeting.

11. The FRENCH Delegate gave the following replies to the questions which had just been put. The importer was the Czechoslovak Academy of Science in Prague. The Delegate reminded the Committee that the Czechoslovak authorities had agreed that at any time an official of the French Embassy in Prague might verify that the stated civilian use was being respected. The use for which this machine was intended was implicit on the following characteristics:

12. It had always been understood that Item 1565 referred to digital-type electronic computer. As far as analogue computers were concerned, the experts preferred to deal with them under Item 1568. All the constituent parts of these machines were to be found under the various sub-items, which moreover specified cut-offs, not complete embargo. Sub-item (b) covered the multiplier servomechanisms which formed part of the OME P-2 computer. These multipliers comprised potentiometers driven by servomechanisms with an electrical error of 0.5% of the full scale, the latter corresponding to a complete revolution of 360°. Rated in degrees therefore, the error was 1/200th of 360°, i.e. 1.8° and was consequently well below the stated cut-off of 0.5 degrees. It should moreover be noted that potentiometers were treated separately under sub-item (g), where the cut-off indicated was 0.1%, an accuracy five times better than that of the potentiometers used (0.5%).

Sub-item (b)(2) covered a different type of equipment.

As to sub-item (b)(3), the maximum voltage used was 100 volts and the accuracy of the servomechanism was 0.1%, giving a null voltage of 100 millivolts which was ten times higher than the prescribed cut-off. As regards the amplifiers included in the machine, they might be considered to be embargoed under the terms of sub-item (c) of Item 1568, but this paragraph seemed to be one which had not been carefully examined during the successive List reviews, since the question of amplifiers was fully dealt with under Item 1521. The amplifiers used in the OME P-2 computer were of the D.C. type covered by Item 1521(d), where the cut-off indicated was 10^{-16} watts for the noise level and 10^{-16} watts for the zero drift.

The characteristics of the amplifiers used were the following:

zero drift : $\pm$ 50 microvolts

noise level : 0.15 millivolts

maximum input resistance: 2 megohms

The lowest input voltage measurable corresponded to the lower of the two following values:

$$\frac{50^{-2}\ (10^{-12})}{2\ (10^{-6})} = 1.25\ (10^{-15})\ \text{watt}$$

$$\frac{0.15^{2}\ (10^{-6})}{2\ (10^{-6})} = 1.125\ (10^{-14})\ \text{watt.}$$

A study of the machine was sufficient to demonstrate clearly that it could not be put to military or even industrial uses. By their very design, the amplifiers were extremely sensitive to electrical pulses. They ceased to function properly when placed near electrical machines, which would be unavoidable in the case of any military or even industrial applications. The general technology of the machine, in any event, excluded such applications, and it was easy to see that no modification allowing such uses was possible.

13. The Delegate concluded by stressing that the United States Delegation had been the only one to raise firm objection to this export. He hoped that the technical data he had just supplied would help the United States authorities to reconsider their position. He asked the Chairman to set a date for resumption of the discussion.

14. The NETHERLANDS Delegate stated that his authorities would inform the French Delegation of their views as soon as they had studied the technical arguments which had just been given.

15. The BELGIAN Delegate stated that since the machine in question was intended for a research laboratory, his Government could give their approval there and then.

16. The UNITED STATES Delegate stated that he would transmit to his authorities the additional information supplied by the French Delegation, together with the latter's request for reconsideration. He did not think, however, that the United States Government would be able to change their decision.

17. The FRENCH Delegate thanked the Delegations who had given favourable replies. He stated that, while his authorities did not wish to wait too long before exporting the machine in question, they were willing to afford those delegations who had not yet taken their decision sufficient time to study the technical characteristics of the machine and to make quite sure that there was no possibility of putting it to industrial or military applications.

18. The COMMITTEE agreed to resume discussion on the 22nd October (tentative date).

19. On the 15th October, the CANADIAN Delegate informed the Committee that his authorities had no objection to this export in view of the end-use of the machine concerned.